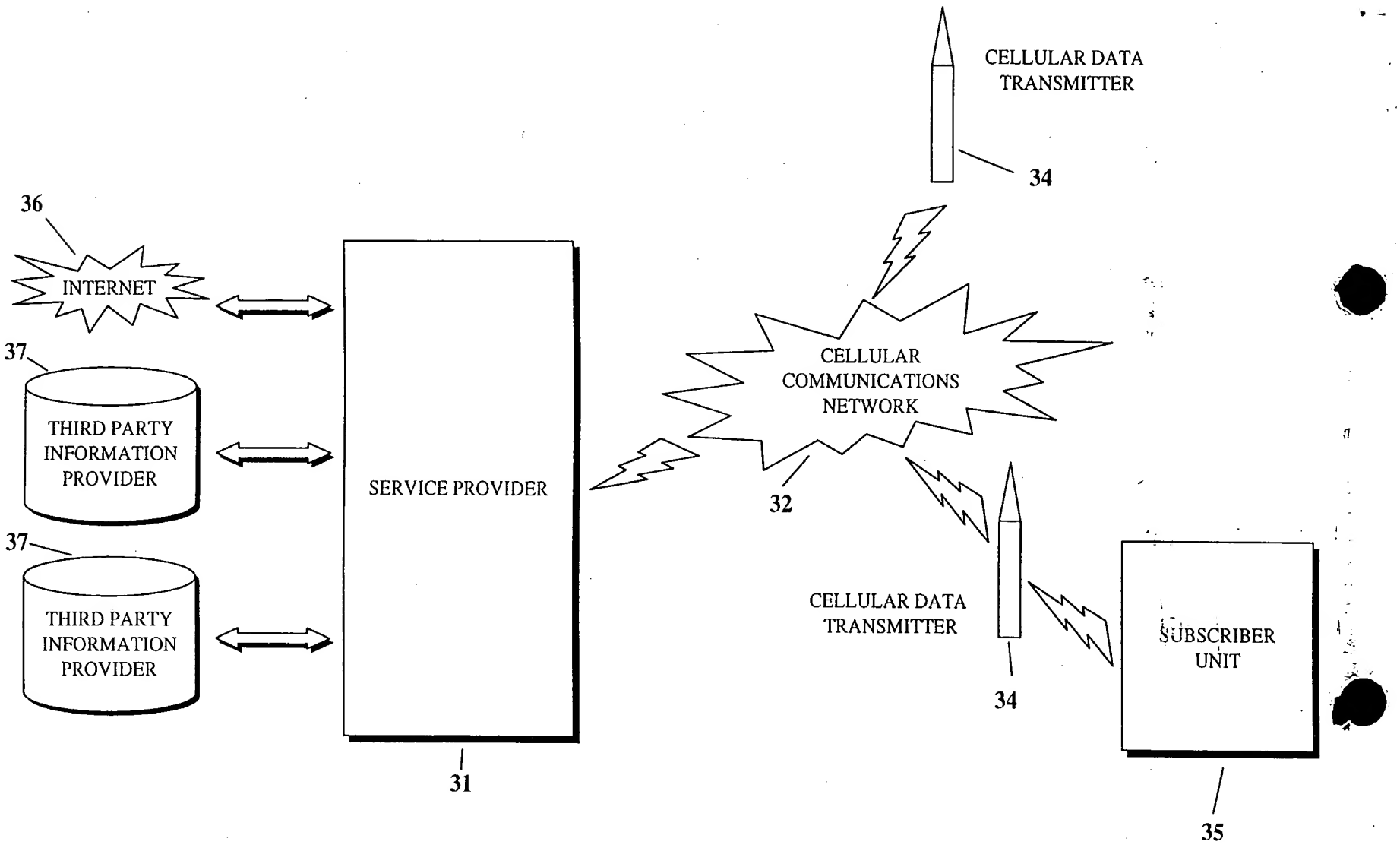
CELLULAR DATA TRANSMITTER
34
36
INTERNET
37
THIRD PARTY INFORMATION PROVIDER
37
THIRD PARTY INFORMATION PROVIDER
SERVICE PROVIDER
31
CELLULAR COMMUNICATIONS NETWORK
32
CELLULAR DATA TRANSMITTER
34
SUBSCRIBER UNIT
35
100

FIG. 1

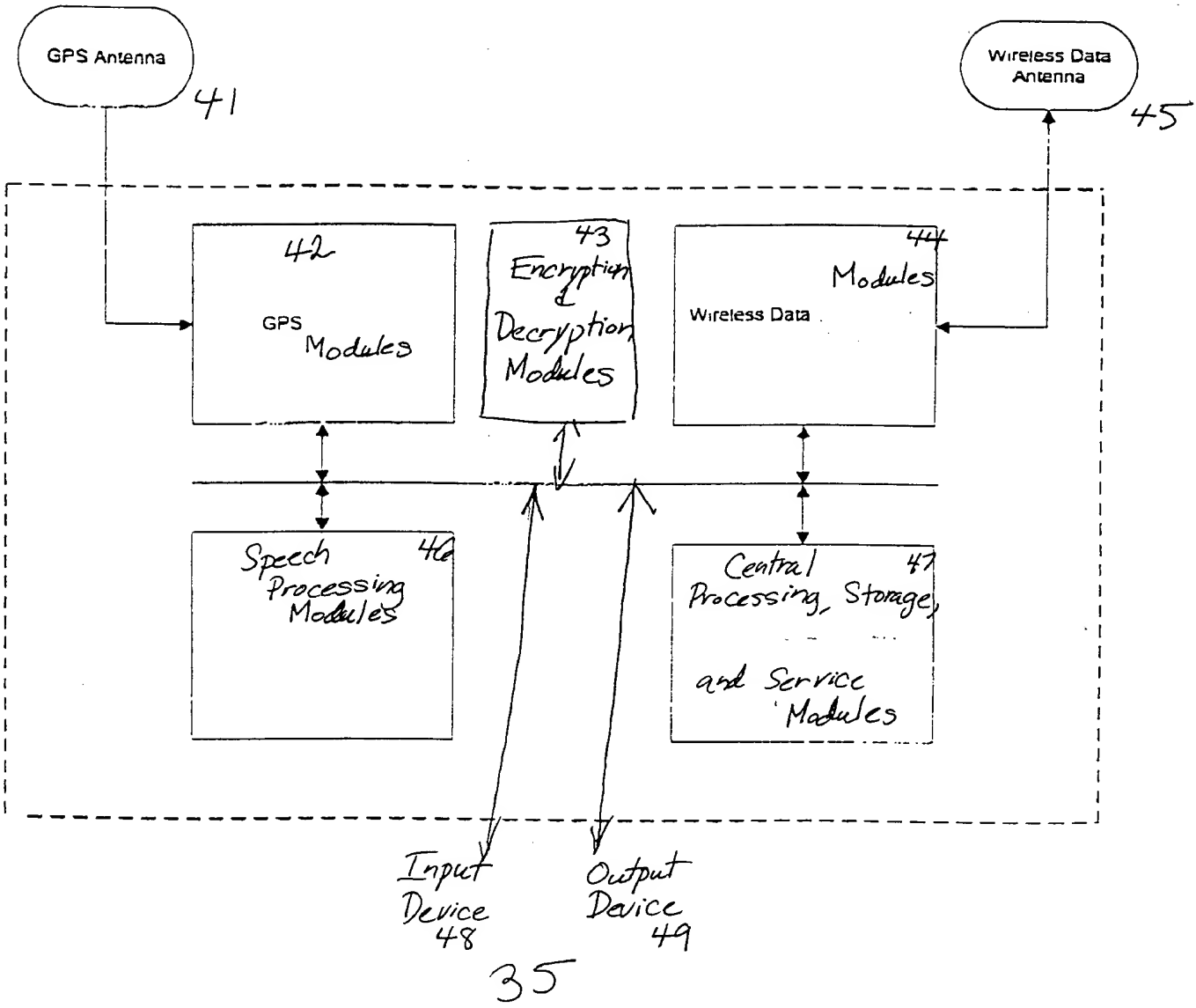
GPS Antenna
41
Wireless Data Antenna
45
42
GPS Modules
43
Encryption & Decryption Modules
44
Wireless Data Modules
Speech Processing Modules
46
Central Processing, Storage, and Service Modules
47
Input Device 48
Output Device 49
35

FIG. 2

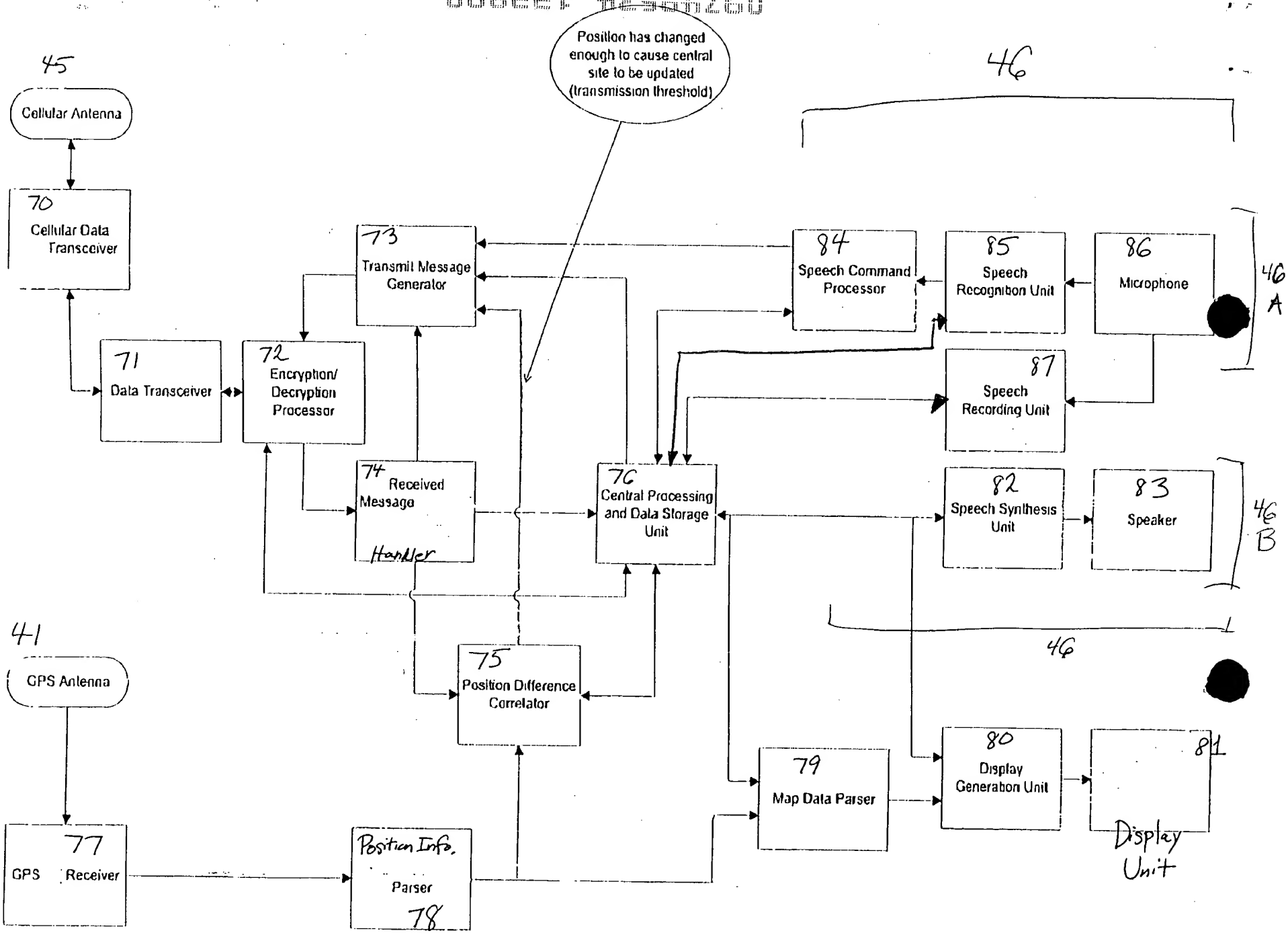
Position has changed enough to cause central site to be updated (transmission threshold)
45
Cellular Antenna
70
Cellular Data Transceiver
71
Data Transceiver
72
Encryption/ Decryption Processor
73
Transmit Message Generator
74
Received Message Handler
75
Position Difference Correlator
76
Central Processing and Data Storage Unit
41
GPS Antenna
77
GPS Receiver
Position Info. Parser
78
79
Map Data Parser
80
Display Generation Unit
81
Display Unit
82
Speech Synthesis Unit
83
Speaker
84
Speech Command Processor
85
Speech Recognition Unit
86
Microphone
87
Speech Recording Unit
46
46A
46B
46
End-User Navigation Device
35

FIG 3

Service Provider Site(s)

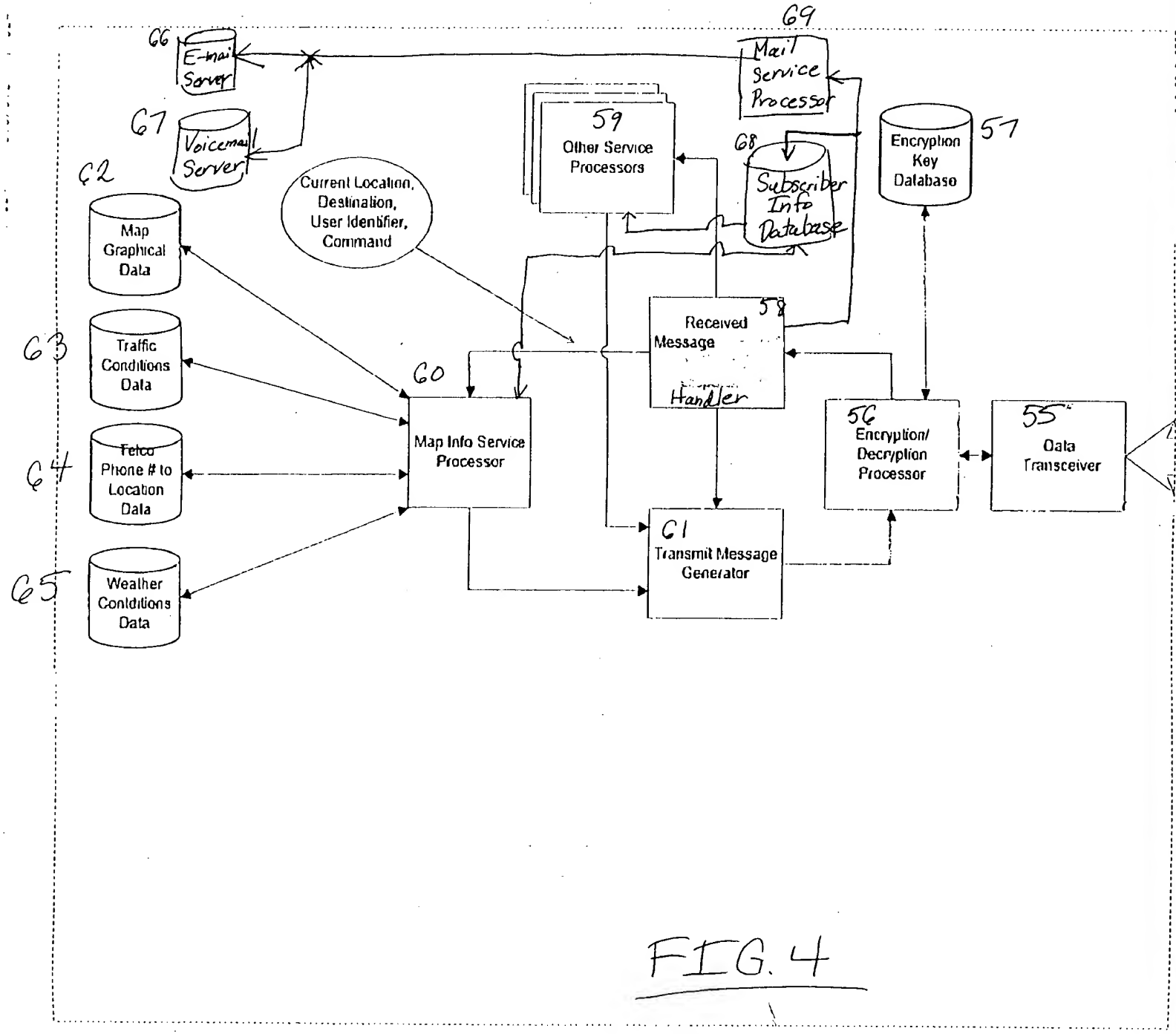

FIG. 4

End-User Location

Data Processing/Subscriber Service Module

Best Available Copy

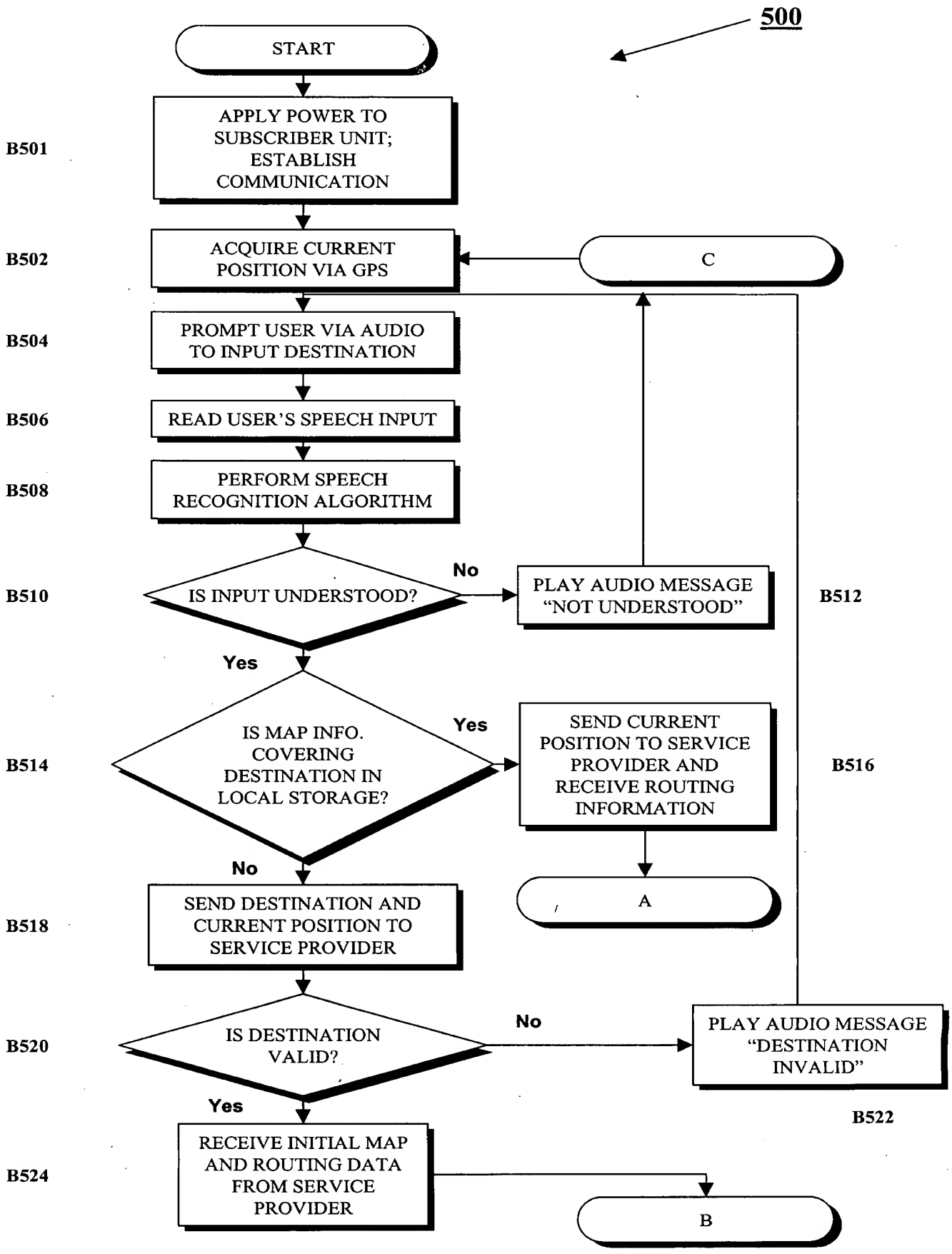
500
START
B501
APPLY POWER TO SUBSCRIBER UNIT; ESTABLISH COMMUNICATION
B502
ACQUIRE CURRENT POSITION VIA GPS
C
B504
PROMPT USER VIA AUDIO TO INPUT DESTINATION
B506
READ USER'S SPEECH INPUT
B508
PERFORM SPEECH RECOGNITION ALGORITHM
B510
IS INPUT UNDERSTOOD?
No
PLAY AUDIO MESSAGE "NOT UNDERSTOOD"
B512
Yes
B514
IS MAP INFO. COVERING DESTINATION IN LOCAL STORAGE?
Yes
SEND CURRENT POSITION TO SERVICE PROVIDER AND RECEIVE ROUTING INFORMATION
B516
A
No
B518
SEND DESTINATION AND CURRENT POSITION TO SERVICE PROVIDER
B520
IS DESTINATION VALID?
No
PLAY AUDIO MESSAGE "DESTINATION INVALID"
B522
Yes
B524
RECEIVE INITIAL MAP AND ROUTING DATA FROM SERVICE PROVIDER
B

FIG. 5

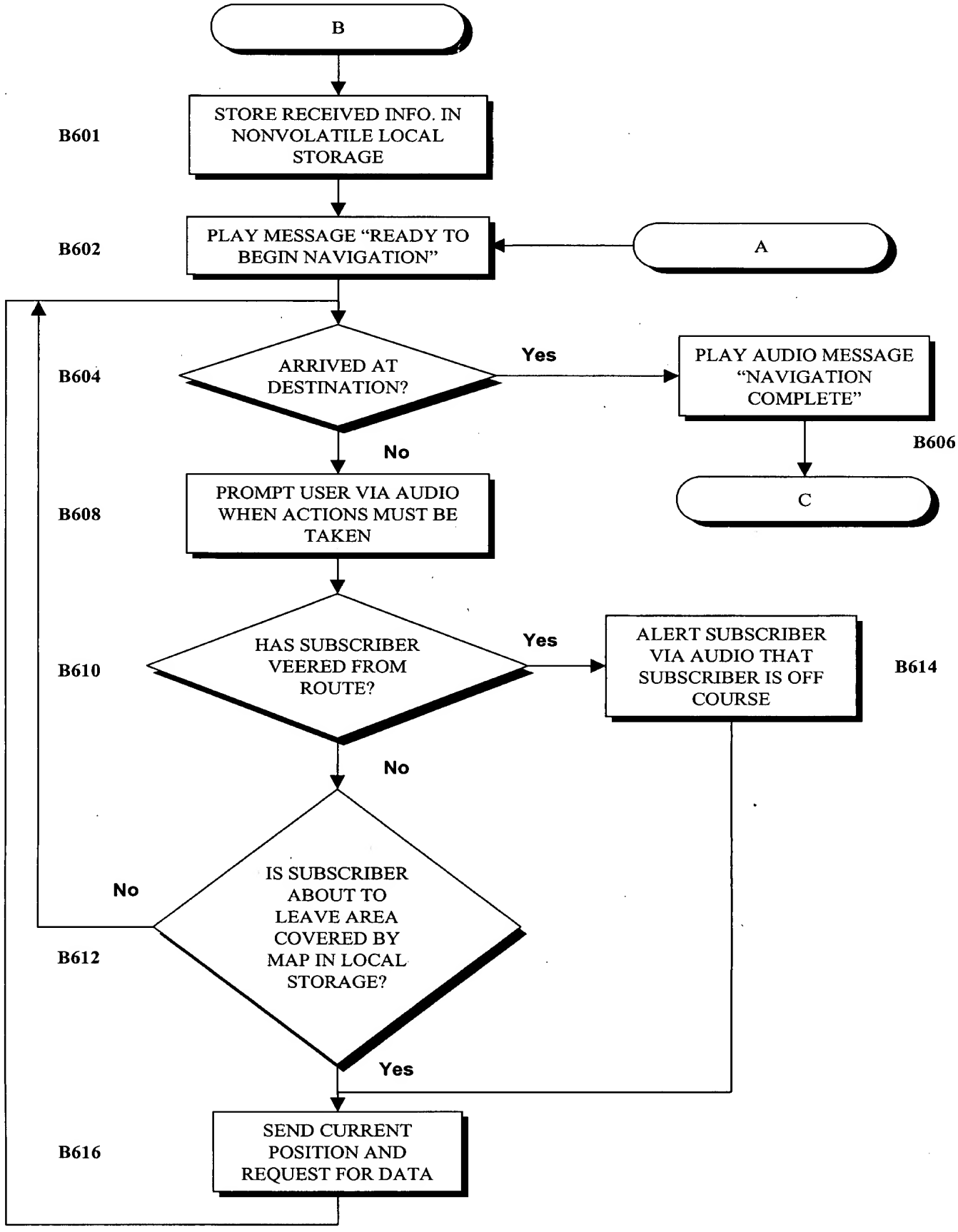
B
B601
STORE RECEIVED INFO. IN NONVOLATILE LOCAL STORAGE
B602
PLAY MESSAGE "READY TO BEGIN NAVIGATION"
A
B604
ARRIVED AT DESTINATION?
Yes
PLAY AUDIO MESSAGE "NAVIGATION COMPLETE"
B606
C
No
B608
PROMPT USER VIA AUDIO WHEN ACTIONS MUST BE TAKEN
B610
HAS SUBSCRIBER VEERED FROM ROUTE?
Yes
ALERT SUBSCRIBER VIA AUDIO THAT SUBSCRIBER IS OFF COURSE
B614
No
No
B612
IS SUBSCRIBER ABOUT TO LEAVE AREA COVERED BY MAP IN LOCAL STORAGE?
Yes
B616
SEND CURRENT POSITION AND REQUEST FOR DATA

FIG. 6